

## We Claim:

1 1. A method of manufacturing a liquid-crystal display  
 2 element; the method comprising a rubbing step of bringing a rubbing  
 3 roller the surface potential of which has been controlled into contact  
 4 with an alignment film formed on the surface of a substrate member,  
 5 to subject the alignment film to rubbing.

1 2. The manufacturing method according to claim 1, wherein  
 2 the surface potential of said rubbing roller is controlled by bringing a  
 3 charge control member into contact with the surface of said rubbing  
 4 roller.

1 3. The manufacturing method according to claim 2, wherein  
 2 the potential of said charge control member is controlled.

1 4. The manufacturing method according to claim 2, wherein  
 2 said charge control member is covered with a material capable of  
 3 being contact-charged to a polarity different from the potential of the  
 4 substrate member surface.

1 5. The manufacturing method according to claim 1, wherein  
 2 the surface potential of said rubbing roller is feedback-controlled in  
 3 accordance with a measured value obtained by measuring the

4 potential of said rubbing roller and the potential of said substrate  
5 member.

1 6. A method of manufacturing a liquid-crystal display  
2 element; the method comprising.

3 a rubbing step of bringing a rubbing roller into contact with an  
4 alignment film formed on the surface of a substrate member, to  
5 subject the alignment film to rubbing;

6 the surface potential of said rubbing roller being controlled to  
7 have the same polarity as the potential of said substrate member.

1 7. The manufacturing method according to claim 6, wherein a  
2 charge control member is brought into contact with the surface of  
3 said rubbing roller, and the potential of said charge control member  
4 is controlled.

1 8. The manufacturing method according to claim 7, wherein  
2 said charge control member is covered with a material capable of  
3 being contact-charged to a polarity different from the surface  
4 potential of said substrate member.

1 9. The manufacturing method according to claim 6, wherein  
2 the surface potential of said rubbing roller is feedback-controlled in  
3 accordance with a measured value obtained by measuring the

4 potential of said rubbing roller and the potential of said substrate  
5 member.

1 10. A method of manufacturing a liquid-crystal display  
2 element; the method comprising:

3 a rubbing step of bringing a rubbing roller the surface potential  
4 of which has been controlled into contact with an alignment film  
5 formed on the surface of a substrate member, to subject the alignment  
6 film to rubbing;

7 the surface potential of said rubbing roller being so controlled  
8 that;

9 the potential of said substrate member and the surface potential  
10 of said rubbing roller have the same polarity in accordance with a  
11 measured value obtained by measuring the surface potential of said  
12 substrate member and the potential of said rubbing roller.

1 11. The manufacturing method according to claim 10, wherein  
2 the surface potential of said rubbing roller is controlled by;

3 bringing a charge control member into contact with the surface  
4 of said rubbing roller; said charge control member being covered  
5 with a material capable of being contact-charged to a polarity  
6 different from the surface potential of said substrate member.

1 12. An apparatus for manufacturing a liquid-crystal display

2 element; the apparatus comprising:

3 a stage for supporting a substrate member to be treated;

4 a rubbing roller for rubbing an alignment film provided on the  
5 surface of the substrate member; and

6 a charge control member for controlling the surface potential of  
7 the rubbing roller.

1 13. The manufacturing apparatus according to claim 12,  
2 wherein said charge control member is covered with a material  
3 capable of being contact-charged to a polarity different from the  
4 surface potential of said substrate member.

1 14. The manufacturing apparatus according to claim 12, which  
2 further comprises:

3 a first sensor for measuring the surface potential of said  
4 substrate member;

5 a second sensor for measuring the surface potential of said  
6 rubbing roller;

7 a charge control member brought into contact with the surface  
8 of said rubbing roller to control the potential of said rubbing roller;  
9 and

10 a controller which controls the potential of said charge control  
11 member in accordance with a measured value of the first sensor and a  
12 measured value of the second sensor so that the surface potential of

13 said rubbing roller has the same polarity as the potential of said  
14 substrate member.

1 15. A liquid-crystal display device comprising the  
2 liquid-crystal display element manufactured by the method  
3 according to claim 1.

1 16. A liquid-crystal display device comprising the  
2 liquid-crystal display element manufactured by the method  
3 according to claim 6.

1 17. A liquid-crystal display device comprising the  
2 liquid-crystal display element manufactured by the method  
3 according to claim 10.

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